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10/644,229	08/20/2003	Sigang Qiu	P16581	5721
28062	7590	09/01/2005	EXAMINER	
BUCKLEY, MASCHOFF, TALWALKAR LLC			TRAN, QUOC DUC	
5 ELM STREET			ART UNIT	
NEW CANAAN, CT 06840			PAPER NUMBER	
			2643	
DATE MAILED: 09/01/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,229

Applicant(s)

QIU, SIGANG

Examiner

Quoc D. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7, 8, 15-19, 21, 24, 27, 29-40, 42 and 44-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 9-14, 20, 22, 23, 25, 26, 28, 41 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 12-14, 20, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (6,445,773) in view of Afzal (6,826,258).

Consider claim 1, Liang et al teach a method comprising: performing at least part of a digital subscriber line handshaking process by transmitting at least one handshaking signal via a telephone subscriber loop (col. 4 line 62 – col. 5 line 16); and analyzing the at least one handshaking signal to detect a characteristic of the telephone subscriber loop (col. 7 line 53 – col. 8 line 36).

Liang et al did not suggest wherein the detected characteristic of the telephone subscriber loop is an estimated length of the telephone subscriber loop. However, Afzal suggested such (col. 9 line 61 – col. 10 line 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Afzal into view of Liang et al in order to provide optimum network performance.

Consider claim 2, as suggested above, Liang et al teach the method further comprising: determining an operating function (i.e., data rates) of an item of terminal equipment connected to

the telephone subscriber loop based at least in part on the estimated length of the telephone subscriber loop (col. 7 line 62 – col. 8 line 36).

Consider claim 12, as discussed above, Liang et al teach the method further comprising: determining, based at least in part on the estimated length of the telephone subscriber loop, a parameter for a digital subscriber line training process (col. 5 lines 17-32).

Consider claim 13, Liang et al teach wherein the determined parameter is used for one of (a) an equalizer function, (b) a timing recovery function, and (c) an automatic gain control function (col. 5 lines 17-32).

Consider claim 14, as discussed above, Liang et al teach the method further comprising: predicting a digital subscriber line service data rate for the telephone subscriber loop on the basis of the estimated length of the telephone subscriber loop (col. 8 lines 7-41).

Consider claim 20, Liang et al teach an apparatus comprising: a memory; a processor coupled to the memory to: receive at least one handshaking signal transmitted via a telephone subscriber loop in connection with a digital subscriber line handshaking process (col. 4 line 62 – col. 5 line 16); and analyze the at least one handshaking signal to detect a characteristic of the telephone subscriber loop (col. 7 line 53 – col. 8 line 36). It should be noted that the test devices (i.e., DSL modems) are inherently contain memory and processor.

Liang et al did not suggest wherein the detected characteristic of the telephone subscriber loop is an estimated length of the telephone subscriber loop. However, Afzal suggested such (col. 9 line 61 – col. 10 line 10). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Afzal into view of Liang et al in order to provide optimum network performance.

Consider claim 23, Liang et al teach an apparatus comprising: means for receiving at least one handshaking signal transmitted via a telephone subscriber loop in connection with a digital subscriber line handshaking process (col. 4 line 62 – col. 5 line 16); and means for analyzing the at least one handshaking signal to detect a characteristic of the telephone subscriber loop (col. 7 line 53 – col. 8 line 36).

Liang et al did not suggest wherein the detected characteristic of the telephone subscriber loop is an estimated length of the telephone subscriber loop. However, Afzal suggested such (col. 9 line 61 – col. 10 line 10). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Afzal into view of Liang et al in order to provide optimum network performance.

Consider claim 26, Liang et al teach an apparatus comprising: a storage medium having stored thereon instructions that when executed by a machine result in the following (col. 8 lines 44-47): receiving at least one handshaking signal transmitted via a telephone subscriber loop in connection with a digital subscriber line handshaking process (col. 4 line 62 – col. 5 line 16); and analyzing the at least one handshaking signal to detect a characteristic of the telephone subscriber loop (col. 7 line 53 – col. 8 line 36).

Liang et al did not suggest wherein the detected characteristic of the telephone subscriber loop is an estimated length of the telephone subscriber loop. However, Afzal suggested such (col. 9 line 61 – col. 10 line 10). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Afzal into view of Liang et al in order to provide optimum network performance.

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3. Claims 3, 5-6, 22, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (6,445,773) in view of Afzal (6,826,258) and further in view of Levin et al (6,625,777).

Consider claims 3, Liang et al did not suggest wherein the determining includes determining whether to perform trellis coded modulation in the item of terminal equipment. However, Levin et al suggested such (col. 4 lines 3-26). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Levin et al into view of Liang et al and Afzal in order to determine the optimal performance of the line.

Consider claim 5, Levin et al teach wherein it is determined not to perform trellis coded modulation in the item of terminal equipment if the estimated length of the telephone subscriber loop is less than a predetermined length (col. 12 lines 46-67).

Consider claim 6, Liang et al teach wherein the item of terminal equipment is a digital subscriber line modem (col. 4 lines 62-64).

Consider claims 22, 25 and 28, Liang and Afzal did not suggest wherein the processor is also to determine not to perform trellis coded modulation if the estimated length of the telephone subscriber loop is less than a predetermined length. However, Levine suggested such (col. 12 lines 46-67). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Levin et al into view of Liang and Afzal in order to determine the optimal performance of the line.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (6,445,773) in view of Afzal (6,826,258) and further in view of Nelson et al (6,263,048).

Consider claim 9, Liang et al did not suggest wherein the analyzing to detect the estimated length of the subscriber loop includes comparing a power spectrum density of upstream signal carriers to a power spectrum density of downstream signal carriers (i.e., power ratio). However, Nelson et al suggested such (col. 2 lines 20-46). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al into view of Liang et al and Afzal provide optimum network performance.

Consider claim 10, as discussed above, Nelson et al teach wherein the analyzing to detect the estimated length of the subscriber loop also includes comparing a power spectrum density of a first group of downstream signal carriers to a power spectrum density of a second group of downstream signal carriers, wherein each signal carrier of the first group of downstream signal carriers is at a higher frequency than each signal carrier of the second group of downstream signal carriers (col. 2 lines 20-46; col. 5 lines 25-29).

Consider claim 11, Liang et al did not suggest wherein the analyzing to detect the estimated length of the subscriber loop includes comparing a power spectrum density of a first group of downstream signal carriers to a power spectrum density of a second group of downstream signal carriers, wherein each signal carrier of the first group of downstream signal carriers is at a higher frequency than each signal carrier of the second group of downstream signal carriers. However, Nelson et al suggested such (col. 2 lines 20-46; col. 5 lines 25-29). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al into view of Liang et al and Afzal provide optimum network performance.

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5. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (6,445,773) in view of Afzal (6,826,258) and further in view of Johnson (6,845,248).

Consider claim 41, Liang et al teach a system comprising: the digital subscriber line modem including: a memory; a processor coupled to the memory to: receive at least one handshaking signal transmitted via a telephone subscriber loop in connection with a digital subscriber line handshaking process (col. 4 line 62 – col. 5 line 16); and analyze the at least one handshaking signal to detect a characteristic of the telephone subscriber loop (col. 7 line 53 – col. 8 line 36). It should be noted that the test devices (i.e., DSL modems) are inherently contain memory and processor.

Liang et al did not suggest wherein the detected characteristic of the telephone subscriber loop is an estimated length of the telephone subscriber loop. However, Afzal suggested such (col. 9 line 61 – col. 10 line 10). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Afzal into view of Liang et al in order to provide optimum network performance.

Furthermore, Liang et al did not suggest the system comprising a radio frequency transceiver; and a digital subscriber line modem coupled to the radio frequency transceiver, However, Johnson suggested such (see Fig. 2).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Johnson into view of Liang et al and Afzal in order to provide communication with the modem wirelessly.



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6. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (6,445,773) and Afzal (6,826,258) in view of Johnson (6,845,248) and further in view of Levin et al (6,625,777).

Consider claim 43, Liang, Johnson and Afzal did not suggest wherein the processor is also to determine not to perform trellis coded modulation if the estimated length of the telephone subscriber loop is less than a predetermined length. However, Levin et al suggested such (col. 12 lines 46-67). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the teaching of Levin et al into view of Liang, Johnson and Afzal in order to determine the optimal performance of the line.

#### ***Response to Arguments***

7. Applicant's arguments filed 6/23/2005 have been fully considered but they are not persuasive.

In response to applicant argument on pages 8-9 that the combination of Liang and Afzal do not teach the limitation of analyzing at least one handshaking signal to an estimated length of the telephone subscriber loop and that Afzal refers only to capacitive measurement to estimate the length of the loop. Accordingly, the examiner respectfully disagrees with applicant argument. Liang et al teach a system and method for determining the capability of cables (i.e., lines or loops) for particular digital services by measuring the signal during the handshaking process. The measured signals are used to determine the characteristics of the cable or loop. Liang et al silent to further discuss of the characteristics of the loop. On the other hand, Afzal also teaches of measuring the loop to determine the ability of the line to support high-speed data services by measuring loop loss that used to determine the characteristic of the loop. The characteristics are

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compared to estimate the length of the loop. As noted that Afzal used a different measurement technique from Liang et al to determine the characteristic of the loop. However, both Liang et al and Afzal are steering to solve a similar problem of determine the capability of the loop for high-speed services. Thus, regardless of which techniques were used, Afzal takes a further step by further define the characteristics of the loop that Liang is silent to. Therefore, Liang et al and Afzal in combination analyzing the at least one handshaking signal to detect a characteristic of the telephone subscriber loop and detect the estimated loop from the characteristic of the loop.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any response to this action should be mailed to:

Mail Stop \_\_\_\_ (explanation, e.g., Amendment or After-final, etc.)  
Commissioner for Patents

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P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

**(703) 872-9306**

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Quoc Tran** whose telephone number is **(571) 272-7511**. The examiner can normally be reached on M, T, TH and SATURDAY from 8:00 to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Curtis Kuntz**, can be reached on **(571) 272-7499**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600** whose telephone number is **(571) 272-2600**.

**QUOCTRAN**  
**PRIMARY EXAMINER**



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August 29, 2005